

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “10” has been used to designate “broken lines” in Figure 1, a cable in Figure 7 and an unnamed component in Figure 12. Examiner believes character 10 in Figure 12 may refer to the support system in a raised position. Furthermore, reference character “11” has been used to designate both a buoy in Figure 7 and an unnamed component in Figure 12. Examiner believes character 11 in Figure 12 may refer to the support system in a lowered position. Additionally reference character “7” has been used to designate both a hinged joint in Figure 1 and an unnamed component in Figures 14 and 15. Character “7” in Figures 14 and 15 has a corresponding reference line which leads to the anchor point identified by reference character “6.”

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the rounded corners introduced in Claim 4 must be shown or the feature(s) canceled from the claim(s). Furthermore, the “adjustment means” introduced in Claims 15 and 16 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

On page 3, line 16 recites "An further objective of this invention" which should be changed to "A further objective of this invention."

On page 5, lines 3-4 recite "the he presence of the deck" the word "he" should be deleted.

On page 9, line 6 recites "Figure 9 is a side elevation illustrating a third embodiment" the word "third" should be changed to "fourth." Line 1 of page 9 states that Figure 7 is the third embodiment of the invention.

On page 9, line 13 recites "Figure 12 1 is a side elevation illustrating" the second "1" should be deleted.

On page 9, line 21 recites "Figure 15 is a front elevation of the turbine installation" the word "front" should be changed to "side." Figure 15 shows an embodiment of the invention from a side perspective.

On page 11, line 8 recites "seabed structure (3" a parenthesis ")" should be added following the "3."

On page 14, line 10 the word "figure" should be capitalized.

On page 14, line 15 recites "wing or false (3)" the word "structure" should be added between "false" and "(3)."

Appropriate correction is required.

Claim Objections

Claims 2-19 are objected to because of the following informalities:

Claim 2, line 1 recites "A support system for a least one water drivable turbine" and the second "a" should be replaced by "at."

Claim 12 is missing a period (.) at the end of the claim.

Claim 13, lines 2-3 recite "wherein the deck is streamlined cross-section and has a convex upper" and does not teach a limitation after "convex upper."

Claims 3-11 and 14-19 are objected to for being dependent upon an objected claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8-9, 15 and 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "raft" in line 4. There is insufficient antecedent basis for this limitation in the claim. Neither claim 1 nor claims 2 nor 7 introduce a raft.

Claims 9, 15, and 17-18 are rejected for being dependent upon a rejected claim.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29

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USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 2 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 7,331,762. Although the conflicting claims are not identical, they are not patentably distinct from each other because the application claims are broader in at least one aspect.

The following comparison between the patent claim and the application claims highlights what elements have been excluded in the presentation of the application claims.

Patent 7,331,762 Claim 4	Application claim 1
From claim 1: A support system for supporting a flowing-water drivable turbine system at a selected position below a water surface and above	A support system for at least one water drivable turbine that when in operation is immersed in a column of water, comprising a deck for supporting said at least one

<p>a sub-aquatic bed, the support structure comprising a plurality of legs fixed to the plurality of legs, the deck having upper and lower surfaces, the deck having an asymmetrical streamlined cross-section defined by a greater convexity on one of the upper or lower surfaces compared to the other, and a second deck vertically spaced from, and arranged generally parallel to, the first deck;</p> <p>From claim 3: The support system of claim 1, further comprising displacing means for displacing the deck between an operational position below the water surface and a maintenance position adjacent to the water surface;</p> <p>From claim 4: The support system of claim 3, wherein the deck is buoyant and the displacing means comprises extendable tension members connecting the deck to the plurality of legs.</p>	<p>turbine when immersed, the deck having an inherent buoyancy whereby the deck is adapted for flotation when it is desired to raise the associated at least one turbine above water level.</p>
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Patent 7,331,762 Claim 4	Application claim 2
<p>From claim 1: A support system for supporting a flowing-water drivable turbine system at a selected position below a water surface and above a sub-aquatic bed, the support structure comprising a plurality of legs fixed to the plurality of legs, the deck having upper and lower surfaces, the deck having an asymmetrical streamlined cross-section defined by a greater convexity on one of the upper or lower surfaces compared to the other, and a second deck vertically spaced from, and arranged generally parallel to, the first deck;</p>	<p>A support system for a least one water drivable turbine that when in operation is immersed in a column of flowing water, wherein the system includes a deck for supporting said at least one turbine when immersed, the deck having an inherent buoyancy which is such as to enable the deck to rise through the column of water upon reduction of the buoyancy, the arrangement being such that the associated at least one turbine can be raised above the surface of said column.</p>

<p>From claim 3: The support system of claim 1, further comprising displacing means for displacing the deck between an operational position below the water surface and a maintenance position adjacent to the water surface;</p> <p>From claim 4: The support system of claim 3, wherein the deck is buoyant and the displacing means comprises extendable tension members connecting the deck to the plurality of legs.</p>	
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Thus, it is apparent that the more specific claim 4 encompasses application claims 1 and 2. Following the rationale in *In re Goodman*, cited above, where applicant has once been granted a patent containing a claim for the specific or narrower invention, applicant may not then obtain a second patent with a claim for the generic or broader invention without first submitting an appropriate terminal disclaimer. Note that since application claims 1 and 2 are anticipated by patent claim 4, and since anticipation is the epitome of obviousness, then application claims 1 and 2 are obvious over patent claim 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 11-14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.K. Patent GB 2,348,249 to Richard and Armstrong (hereafter Richard) in view of International Publication WO 99/02853 to Carstens.

In Reference to Claims 1 and 2

Richard teaches:

A support system for at least one water drivable turbine (1) that when in operation is immersed in a column of flowing water and is supported by a buoyancy chamber (2) (page 2, lines 5-9 and Figure 1).

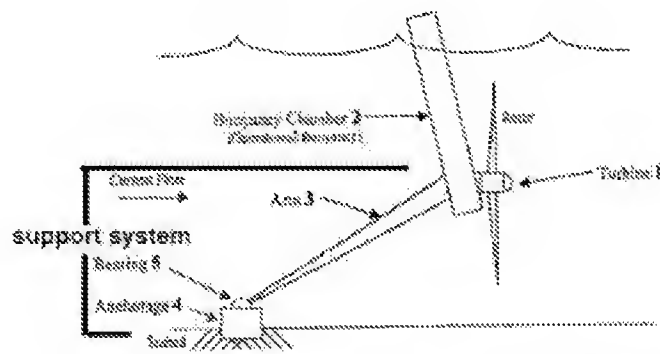


Figure 1 Normal Operation, Single Rotor, Rated Power, Side View

Richard fails to teach:

A deck having an inherent buoyancy.

Carstens teaches:

A support system for a water drivable turbine (61) comprising a deck (67) having an inherent buoyancy (page 4, lines 25-33, page 5, lines 8-9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support system of Richard by replacing the buoyancy chamber with a deck

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having an inherent buoyancy as taught by Carstens for the purpose of increasing the efficiency of the water turbine by directing the flow of water toward the turbines.

In Reference to Claim 3

Richard as modified by Carstens teaches:

The support system of claims 1 or 2 wherein the deck has a rectangular cross section in a horizontal plane (Figure 1 of Carstens – character 15 is the deck).

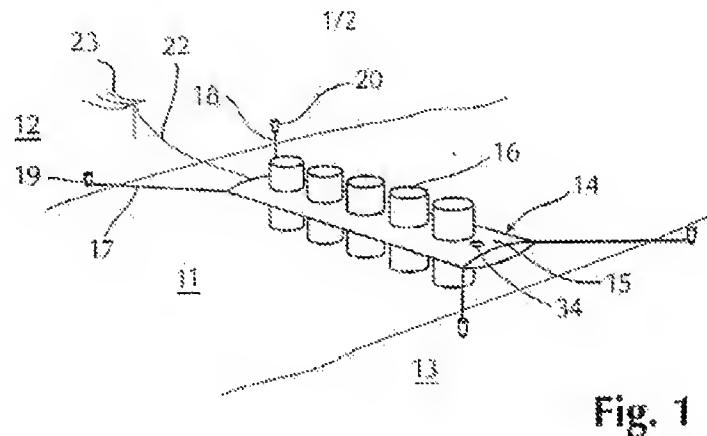


Fig. 1

In Reference to Claim 4

Richard as modified by Carstens teaches:

The support system of claim 3 wherein the deck has a planar smooth surface of approximately rectangular form when viewed from above (see rejection of claim 3).

In Reference to Claim 5

Richard as modified by Carstens teaches:

The support system of claim 3 wherein the rectangular deck is free from flexural movements. Carstens does not explicitly state the deck is free from flexural movements,

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but rather shows structure (engine compartment 31) within the deck which would prevent the deck from flexural movements (page 3, lines 15-6 of Carstens).

In Reference to Claim 6

Richard as modified by Carstens teaches:

The support system of claims 1 or 2 wherein an upper surface of the deck exhibits an even and smooth surface below the at least one turbine (page 2, lines 24-26).

In Reference to Claim 7

Richard as modified by Carstens teaches:

The support system of claims 1 or 2 further comprising an anchoring means (4 of Richard) set into the river bed connected to the deck by struts (3 of Richard). The length of the strut such as to enable the deck to be displaceable between a lowered position and a raised position (page 2, lines 5-15 and 18-20 of Richard).

In Reference to Claim 11

Richard as modified by Carstens teaches:

The support system of claim 7 further comprising pivotal connections (5) associated with the struts (page 2, lines 6-9 of Richard).

In Reference to Claim 12

Richard as modified by Carstens teaches:

The support system of claim 7 wherein the struts can be arranged to be horizontal in the direction of the water flows with respect to the at least one turbine when operating.

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In Reference to Claim 13

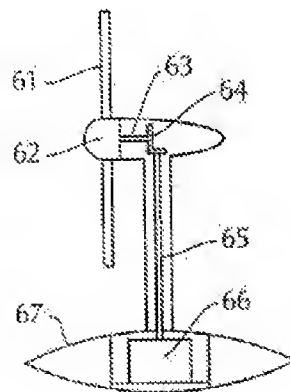
Richard as modified by Carstens teaches:

The support system of claim 7 wherein the deck is of streamlined cross section and has a convex upper (Examiner assumes surface) (page 2, lines 24-26 of Carstens).

In Reference to Claim 14

Richard as modified by Carstens teaches:

The support system of claim 7 wherein the deck is profiled to reduce water flow velocity shear which would reduce turbulent flow, reduce fatigue loads, and enhance efficiency. The profile of the deck as shown in Figure 6 of Carstens would inherently perform the limitations of claim 14.

**Fig. 6**In Reference to Claim 19

Richard as modified by Carstens teaches:

The support system of claims 1 or 2 wherein the deck can be arranged to have neutral buoyancy such as to facilitate the raising and lowering thereof relative to the seabed (page 3, line 31 through page 4, line 2 of Carstens).

Claims 8-9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.K. Patent GB 2,348,249 to Richard in view of International Publication WO 99/02853 to Carstens and in further view of U.S. Patent 1,360,222 to Johnston.

In Reference to Claim 8

Richard as modified by Carstens teaches:

The support system of claim 7 comprising a deck.

Richard as modified by Carstens fails to teach:

The support system further comprises a support upstanding from the river or seabed upon which the deck rests.

Johnston teaches:

A support (12) upstanding from a river or seabed which supports a water turbine immersed in a column of water (page 1, lines 81-89). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support system of Richard as modified by Carstens by adding a support as taught by Johnston for the purpose of supporting the deck and water drivable turbine and preventing the apparatus from contacting the seabed and incurring damage.

In Reference to Claim 9

Richard as modified by Carstens and Johnson teaches:

The support system of claim 8 further comprising a location means (42) which connects the support to the deck (page 2, lines 23-28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the

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support system of Richard as modified by Carstens and Johnston by adding a location means as taught by Johnston for the purpose of securing the deck to the support in order to prevent the system from moving due to strong currents.

In Reference to Claim 17

Claim 17 is rejected under 35 USC 103(a) as unpatentable over Richard in view of Carstens and Johnston. Richard in view of Carstens and Johnston teaches a support beneath the deck of a support system for a water drivable turbine. Richard in view of Carstens and Johnston does not teach that the support extends across the full width of the deck. It would have been an obvious matter of design choice to extend the support the full width of the deck, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.K. Patent GB 2,348,249 to Richard in view of International Publication WO 99/02853 to Carstens and in further view of U.K. Patent GB 2,311,566 to Frankel and Paish (hereafter Frankel).

In Reference to Claim 10

Richard as modified by Carstens teaches:

The support system of claim 7 comprising an anchoring means.

Richard as modified by Carstens fails to teach:

The anchoring means comprises piles set into the seabed.

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Frankel teaches:

A support system for a water turbine comprising an anchoring means (4) which is a pile set into the seabed (page 6, lines 2-9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support system of Richard as modified by Carstens by replacing the anchoring means with a pile as taught by Frankel for the purpose having an anchoring means which can perform more than one function such as securing the water drivable turbine to the seabed and being able to raise the water drivable turbine above the water in order to aid in repairs (page 3, lines 24-27 of Frankel).

Claims 15, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.K. Patent GB 2,348,249 to Richard in view of International Publication WO 99/02853 to Carstens and U.S. Patent 1,360,222 to Johnston and in further view of U.K. Patent GB 2,365,905 to Bone.

In Reference to Claim 15

Richard as modified by Carstens and Johnston teaches:

The support system of claim 8 comprising a support embedded within the seabed.

Richard as modified by Carstens and Johnston fails to teach:

The support is height ways adjustable.

Bone teaches:

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A support (1, 2, 3, 4) for a turbine which turbine which is height ways adjustable (page 2, lines 12-14 and 23-25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support system of Richard as modified by Carstens and Johnston by adding height ways adjustability as taught by Bone for the purpose of raising and lowering the support in order to secure the turbine at a height with an optimal current.

In Reference to Claim 18

Richard as modified by Carstens and Johnston and Bone teaches:

The support system of claim 15 wherein the support is weightwise loaded (page 1, lines 81-89 of Johnston).

In Reference to Claim 16

Richard as modified by Carstens teaches:

The support system of claim 7 comprising a deck.

Richard as modified by Carstens fails to teach:

The support system further comprises two ore more height ways adjustable supports upstanding from the river or seabed upon which the deck rests.

Johnston teaches:

A support (12) upstanding from a river or seabed which supports a water turbine immersed in a column of water (page 1, lines 81-89).

Bone teaches:

A support (1, 2, 3, 4) for a turbine which turbine which is height ways adjustable (page 2, lines 12-14 and 23-25).

Regarding the use of two or more supports, it is well known to support a structure using one sufficiently large support or using multiple smaller supports in order to reduce the load applied to each support.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support system of Richard as modified by Carstens by adding the support as taught by Johnston, making support height ways adjustable as taught by Bone and using two or more supports as an engineering expedient for the purpose of supporting the deck and preventing the apparatus from contacting the seabed and incurring damage and in order to secure the apparatus at a height with an optimal current.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 4,864,152 to Pedersen teaches a support system for a water drivable turbine sitting atop a buoyant support which is connected to an anchoring means. The support system can be rotated to allow the turbines to be accessed for maintenance and repairs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON DAVIS whose telephone number is (571)270-3289. The examiner can normally be reached on M-F 7:30-5:00 EST, Alternate Fridays Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Look can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Justine R Yu/
Supervisory Patent Examiner, Art Unit 3771